

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

REPTILES (EXCLUSIVE OF SNAKES) OF THE
CHILPANCINGO REGION, MEXICO

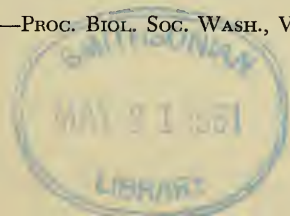
BY WILLIAM B. DAVIS AND JAMES R. DIXON

*Department of Wildlife Management, Texas A. & M. College,
College Station, Texas*

In the course of biological investigations carried on in central Guerrero from 1952 to 1958, the senior author and his associates collected 1011 lizards representing 44 species and 15 turtles of one species. These specimens are deposited in the Texas Cooperative Wildlife Collections (TCWC) and constitute the basis for this report. Since collecting was not selective (except for *Ctenosaurus*), the number of specimens taken is a crude measure of the relative abundance of each species during the period of the survey. In presenting our report we have given special attention to data on reproduction and on the habitat occupied by each species.

In a report on the snakes of the Chilpancingo Region, Davis and Dixon (1959) describe the physiography and vegetation of the region here under consideration. Briefly, the area is that lying between latitudes 17° N and 18° N and longitudes 99° W and 100° W. Chilpancingo lies approximately in the center of this quadrangle.

The following lizards were not collected by us although they have been reported in the literature from the Chilpancingo Region: *Hemidactylus frenatus*, Tierra Colorada (Smith and Taylor, 1950); *Anolis nebuloides*, ca. Tierra Colorada, 2 mi N Xaltianguis (Smith, 1933); *Sceloporus horridus oligoporus*, ca. Xaltianguis (Smith, 1939b); *Sceloporus asper*, Chilapa (Ahl, 1934). Smith and Taylor (1950) question the identification of the last-named species.



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Family BIPEDIDAE Stejneger

Bipes canaliculatus Bonnaterre

TCWC (1), Arid Tropical Scrub. Mexcala, 1600 ft. Other records: Balsas, Tecuaizapan (Smith and Taylor, 1950). Our specimen was found in a trash pile after a rain. S-V length, 207 mm; tail, 36 mm; ventral body annuli, 166; caudal annuli, 33; dorsal annuli, 252; preanal pores, 6. These measurements and scale counts appear to be near the maximum for the species. Smith's (1949) largest specimen, of 12 reported on, had the following measurements and counts: S-V length, 192 mm; tail, 30 mm; ventral body annuli, 164; caudal annuli, 35+; dorsal annuli, 201. The fifth finger in our specimen is minute and lacks a claw.

Family GEKKONIDAE Stejneger

Coleonyx elegans nemoralis Klauber

TCWC (2), Arid Tropical Scrub and Tropical Deciduous forest. Acahuizotla, 2800 ft (1 ♀); 1 mi SW Colotlipa, 2700 ft (1 ♀). Other record: Agua del Obispo (Klauber, 1945). In both of our specimens the prenasals are distinctly separated. The one from Colotlipa, taken 2 July, was found after heavy rains under a rock in a rather dry chaparral zone which appears to be a finger of the Balsas Basin. The specimen from Acahuizotla, taken 11 June, is from a broadleaf forest association. Each female contained two large eggs nearly ready for deposition. Snout-vent length, 83 mm and 91 mm, respectively.

Phyllodactylus bordai Taylor

TCWC (1), Arid Tropical Scrub. Mexcala, 1600 ft. This specimen, a juvenile captured near Mexcala on 26 June, is 40 mm in snout-vent length. The identification is tentative until a larger series becomes available. It was found in a rocky situation where large boulders and crevices offered concealment.

Phyllodactylus delcampi Mosauer

TCWC (1 ♀), Tropical Deciduous forest. 1 mi SW Tierra Colorada, 900 ft. Other record: Tierra Colorada (Mosauer, 1936). This gecko, one of the largest *Phyllodactylus* in Mexico, attains a snout-vent length of 90 mm. Our specimen has 21 rows of scales between the orbits, 22 across snout between third labials; transverse row of 6 scales bordering postmentals; no enlarged tubercles on tail, but 16 rows of low, moderately keeled tubercles on the dorsum, four more rows than the maximum given by Smith and Taylor (1950). Mosauer (1936), however, reported 13 rows in one of the two specimens on which the original description of *delcampi* was based. The purplish brown dorsal coloration, with irregular dark brown cross bands, agrees with the type description. This specimen, captured 2 July, was not gravid. Snout-vent length, 75 mm.

Phyllodactylus lanei Smith

TCWC (54), Tropical Deciduous and Pine-oak forests. Acahuizotla,

2800 ft (9♂♂, 16♀♀, 1 juv.); 1 mi SW Tierra Colorada, 900 ft (3♂♂, 4♀♀); 5 mi SW Tierra Colorada, 1000 ft (1♂, 7♀♀, 1 juv.); Agua del Obispo, 3300 ft (4♂♂, 5♀♀, 2 juv.); Rincón, 2600 ft (1♂). Other records: 2 mi S Garrapatas; between Rincón and Cajones; Tierra Colorada (Smith, 1935b). The number of scales between the orbits in the series studied ranged from 14 to 18, with more than 80 per cent of the specimens having 15, 16, or 17. In this series the three or four subdigital lamellae preceding the penultimate are tripartite. Snout-vent length in sexually mature males varied from 60 mm to 75 mm (mean, 68 mm); in females, from 55 mm to 72 mm (mean about 62 mm). Females taken in June contained enlarged ovarian follicles; four juveniles, 28 mm, 35 mm, 40 mm, and 41 mm in snout-vent length were captured. Males can readily be distinguished by the presence of a large, conspicuous postanal scale.

These geckos were found mainly at night on boulders along hillsides and streams; many were found in caves near Acahuizotla.

Phyllodactylus magnus Taylor

TCWC (31), Tropical Deciduous and Pine-oak forests. Acahuizotla, 2800 ft (9♂♂); Agua del Obispo, 3300 ft (6♂♂, 6♀♀); 1 mi SW Colotlipa, 2700 ft (4♂♂, 4♀♀); Rincón, 2600 ft (1♂, 1 yg.). Other records: El Ocotito; Garrapatas; Tierra Colorada (Taylor, 1942). In a series of three females and eight males, the number of scales across the interorbital region ranges from 19 to 29, a somewhat greater range (23–29) than reported by Taylor (1942). However, in those specimens with 19 and 21 interorbital scales the subdigital lamellae, except for the outer one, are undivided and the abdomen was yellow in life. The largest female in our series is 80 mm in snout-vent length; the largest male, 93 mm. We can find no suitable means of distinguishing males from females by external characters.

Males taken from mid-June to early July had enlarged testes; females contained enlarged ovarian follicles and enlarged fallopian tubes. A juvenile 37 mm in snout-vent length was captured at Rincón on 26 June. Most of our specimens were found in caves; one was found on the trunk of a fig tree, others on boulders.

In the Pine-oak forest above Agua del Obispo, *P. magnus* and *P. lanei* have been captured together on the same boulder.

Family IGUANIDAE Gray

Anolis dunnii Smith

TCWC (37), Tropical Deciduous and Pine-oak forests. Acahuizotla, 2800–3000 ft (10♂♂, 10♀♀); Agua del Obispo, 3300 ft (8♂♂, 11♀♀); 1 mi SW Colotlipa, 2800 ft (3♂♂, 3♀♀). Other record: Agua del Obispo (Smith, 1933). Gular fan ruby red; hind leg to eye in males (shorter in females); ventrals smooth; white stripe under eye; moderately large size. Our specimens were found on boulders and tree trunks, especially in riparian situations. Females taken in early June had ova about

4 mm in diameter; those taken in late June and early July had large eggs, 7×10 mm, some with shells and nearly ready for deposition.

Anolis gadovi Boulenger

TCWC (7), Tropical Deciduous forest. 1 mi S Tierra Colorada, 900 ft (6♂♂, 1♀). Other record: Tierra Colorada (Boulenger, 1905). Gular fan ruby red; hind foot to eye or beyond; ventrals smooth; four gulars in contact with mental. Our specimens were found mainly on large boulders. A female taken 2 July, had two eggs with well-developed shells, 7×15 mm, in the oviducts.

Anolis liogaster Boulenger

TCWC (3♀♀), Cloud forest. 2 mi W Omiltemi, 7900–8100 ft. Other record: Omiltemi (Boulenger, 1905; Gadow, 1905). Upper parts coppery brown with scalloped, light paravertebral stripes; one female with broad, straight-edged, cream-colored stripe as is found occasionally in females of *A. dunni* and *A. nebulosus*. Ventrals smooth; hind toe to eye (or nearly so); gular fan reddish. The three females collected 7–11 June 1953, were gravid, each with two large eggs; the largest measured 7×13 mm. The three specimens were found on fallen pine logs on a ridge northwest of Omiltemi. Five specimens in the U. S. National Museum have been preserved so long (1903) that the scalloped paravertebral stripes are obscure, but they are still discernible in some specimens.

Anolis megapholidotus Smith

TCWC (33), Tropical Deciduous and Pine-oak forests. Acahuizotla, 2800–3500 ft (6♂♂, 5♀♀); near Agua del Obispo, 3300–4000 ft (6♂♂, 13♀♀); SW of Colotlipa, 5000 ft (1♂, 2♀♀). Other record: Between Rincón and Cajones (= Agua del Obispo) (Smith, 1933). Gular fan red; dorsals as large or larger than keeled ventrals. Most of our specimens were found on tree trunks in coniferous forests. Females taken in June were gravid—8 June, ova about 2 mm in diameter; on 16 June, 8×5 mm, but without shell; on 27 June, 10×6 mm with shell. The enlarged ova were almost always two in number. Testes in males taken in June were small, indicating that the breeding season had passed.

Anolis microlepidotus Davis

TCWC (5), Pine-oak and Tropical Deciduous forests. 2.5 mi S Almolonga, 5600 ft (3♂♂) 4 mi W Chilpancingo, 5800 ft (1♂, 1♀). Other record: Chilpancingo (Davis, 1954). A small anole with ruby red gular fan; ventrals keeled and much larger than dorsals; hind toe fails to reach ear with hind leg laid forward. This species seems to be restricted to the chaparral-oak belt at middle elevations near Chilpancingo. One specimen from near Almolonga was captured in a swampy situation, but all the others came from xeric sites.

Anolis nebulosus Wiegmann

TCWC (48), Tropical Deciduous and Pine-oak forests. Acahuizotla,

2800 ft (16 ♂♂, 6 ♀♀); Agua del Obispo, 3300 ft (6 ♂♂, 3 ♀♀); 1 mi SW Colotlipa, 2700 ft (6 ♂♂, 10 ♀♀); 2 mi S Palo Blanco, 3500 ft (1 ♂). A moderate sized anole; gular fan yellow with bluish spot in anterior "corner"; dorsals enlarged, but much smaller than keeled ventrals; ear opening very small; hind toe to ear or nearly so. Females taken in June and early July were gravid with one to three (usually two) enlarged ova; the largest measured 10×6 mm. This lizard is normally found on rocks or on trunks of broad-leaved trees, usually below the pine belt. It is most common in riparian situations.

Anolis omiltemanus Davis

TCWC (8), Pine-oak and Cloud forests. 2 mi W Omiltemi, 7800 ft (3 ♂♂, 2 ♀♀); 4 mi W Mazatlán, 7800 ft (1 ♂, 2 ♀♀). A small anole with yellowish-orange gular fan; two to four postrostrals; ventrals smooth, larger than dorsals; hind toe to ear or less; loreals usually in three or four rows, rarely in five. Two females taken 11 June and two taken 24 June were gravid, each with two enlarged ova.

Anolis subocularis Davis

TCWC (3), Tropical Deciduous forest. 1 mi S Tierra Colorada, 1000 ft (2 ♂♂); 30 km N Acapulco (1 ♂). Other records: 2 mi S Garrapatas; Rincón; Tierra Colorada (Davis, 1954). Medium-sized anole, ventral scales keeled; supralabials and suboculars separated by posterior extension of lowest row of loreals, or nearly so; hind toe to eye. Seemingly the most common anole below an elevation of 1500 ft on the Pacific slope of Guerrero.

Basiliscus vittatus Wiegmann

TCWC (49), Tropical Deciduous forest. Acahuzotla, 2800 ft (21 ♂♂, 8 ♀♀); 1 mi SW Colotlipa, 2800 ft (6 ♂♂, 2 ♀♀); 5 km SW Tierra Colorada, 1000 ft (2 ♂♂, 7 ♀♀); 1 mi SW Tierra Colorada, 1000 ft (3 ♀♀). Other records: Tierra Colorada (Gadow, 1905), 1 mi N Organos (Smith, 1935b).

Our specimens were all found near permanent water, particularly in areas strewn with large boulders. Adult females captured in the last half of June contained large eggs ($12 \text{ mm} \times 20 \text{ mm}$) nearly ready for deposition. The larger females (snout-vent length 120 mm or more) usually contained six to eight eggs; the smaller, sexually mature ones, four or five. Those females less than 70 mm in snout-vent length were sexually immature. Recently hatched juveniles (34 to 40 mm in snout-vent length) were captured 5 June, 22 June, and 2 July. Old females taken after 2 July were sexually inactive. These data suggest a breeding season extending from April to July.

The dorsal fin, characteristic of males, is not evident in individuals less than 80 mm in snout-vent length. In males 90–110 mm in snout-vent length, the fin is about 2 mm high; and in fully adult males, snout-vent length 138 or more, it is 8 to 10 mm high. The occipital fan exhibits a similar pattern of development with age. In newly hatched

males it is not evident; in those 75 mm in snout-vent length the fan is 12 mm in length; in subadults, 28 to 30 mm in length; and in old males, 40 to 50 mm (Fig. 1). Females develop neither a dorsal fin nor an occipital fan.

In this species the ratio of length of tail to snout-vent length is nearly constant from infancy to old age (Fig. 2).

Ctenosaura pectinata Wiegmann

TCWC (11), Arid Tropical Scrub, Dry and Humid Tropical Deciduous forest, and Lower Pine-oak forest. Acahuizotla, 2800 ft (1 ad. ♂, 3 ad. ♀, 2 yg.); Agua del Obispo 3500 ft (1 juv.); 10 mi SE Colotlipa,

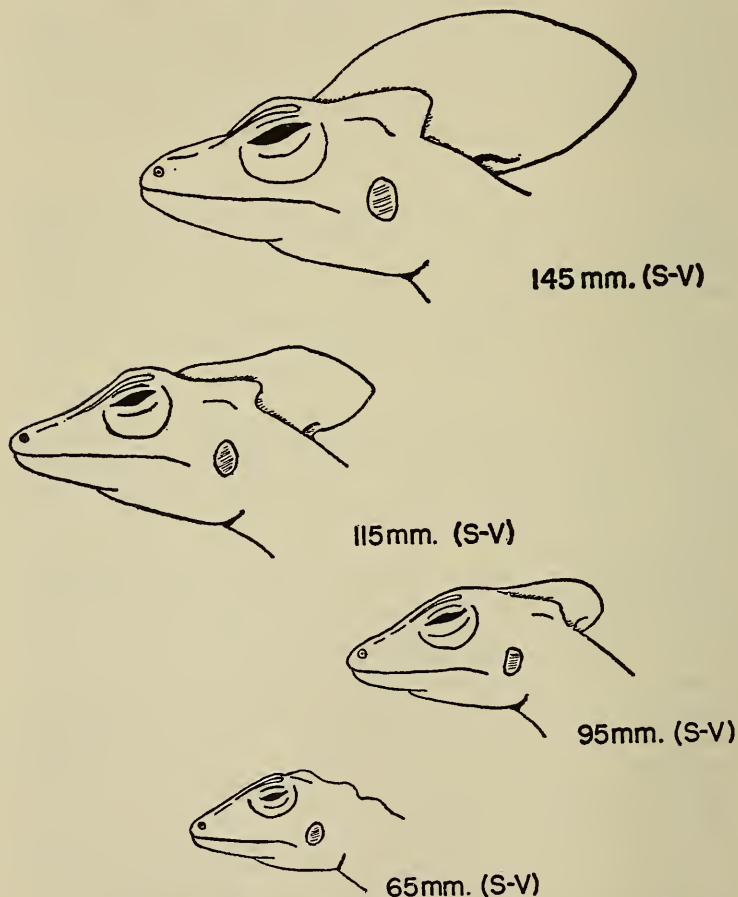


Fig. 1. Ontogenetic changes in the occipital fan of male *Basiliscus vittatus*.

4000 ft (1 yg.); 5 mi S Puerta de Mexcala, 1800 ft (1 subad. ♀, 1 yg.); 5 mi SW Tierra Colorada, 1000 ft (1 yg. ♂). Other records: Balsas, (Smith, 1939a) Cocoyul, Río Balsas (Gadow, 1905); near Mexcala, 1 mi N Organos, Tierra Colorada, 16 mi S Tierra Colorada (Smith, 1935b).

This is a widespread lizard in Guerrero at elevations below 6000 ft. It prefers rocky situations, particularly canyon walls and bluffs. In many localities it is regularly hunted by local residents for food.

Sexually mature adults measure 200 mm or more in snout-vent length. Gonads of animals smaller than that appear to be immature. Breeding probably takes place in early spring. None of the adults examined in June was sexually active, but small (snout-vent length 59-65 mm), green-colored juveniles were abundant then. Most of them were probably not more than a month old.

Phrynosoma asio Cope

TCWC (12), Arid Tropical Scrub. Near Mexcala 1600 ft (8 ♂ ♂, 1 ♀); Puente de Mexcala 1650 ft (2 ♂ ♂); 5 mi S Puente de Mexcala, 1800 ft (1 yg. ♀). Other record: Río Balsas (Gadow, 1905).

Three of our 12 specimens were found at the side of the highway or dead on the pavement south of the Río Balsas; most of the others were found during the heat of mid-day under bits of bark beside an old match factory on the south bank of the Río Balsas. A male and female were found copulating on 26 June. Both animals were taken alive and kept in captivity. On 13 August, the female laid four eggs, but died, probably from malnutrition, in the process. Autopsy revealed 17 additional eggs ready for deposition.

Phrynosoma taurus Dugès

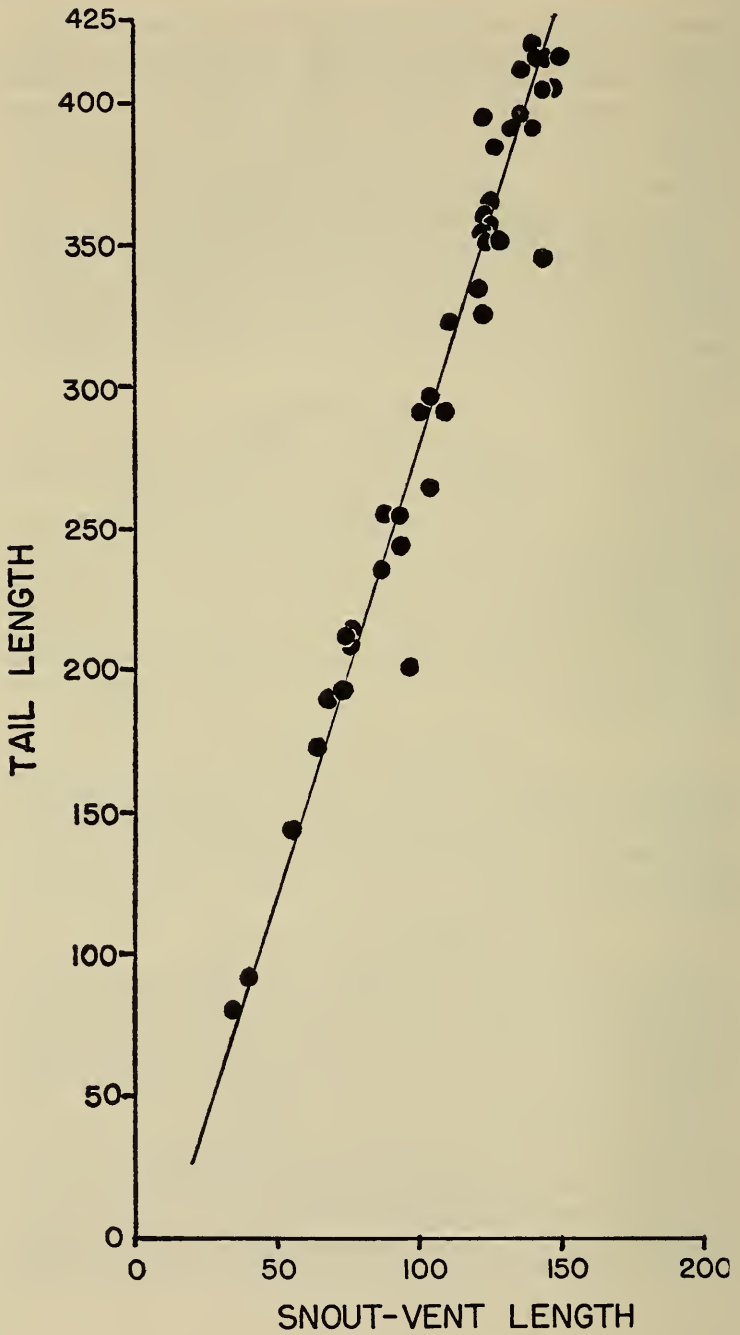
TCWC (1 ♀), Chaparral-oak forest. 3 mi W Chilpancingo, 5000 ft. Other records: Amula; 5 mi N Chilpancingo (Smith & Taylor, 1950).

Our specimen, taken 17 June, is a young, sexually inactive female 52 mm in snout-vent length. It was found on a dry, rocky, brush-covered hill. Seemingly the species is rare and restricted in its distribution in Guerrero.

Sceloporus formosus scitulus Smith

TCWC (97), Chaparral-oak, Pine-oak and Cloud forests. 15 km SW Chilpancingo, 9000 ft (1 ♂); 4-5 mi W Mazatlán, 7800-8200 ft (25 ♂ ♂, 14 ♀ ♀, 2 juv.); 2 mi SW Omiltemi, 7900 ft (12 ♂ ♂, 14 ♀ ♀); Tejocote (= Tejocotal) 7000 ft (5 ♂ ♂, 3 ♀ ♀); 2.5 mi S Almolonga, 5600-5800 ft (10 ♂ ♂, 9 ♀ ♀, 2 juv.). Other records: Chilpancingo (Gadow, 1905), Omiltemi (Smith, 1942).

We found individuals of this species most commonly on stumps, logs, and fallen trees in the pine-oak forest west of Chilpancingo, but east of there, at Almolonga, they occurred in the oak belt. All females 56 mm in snout-vent length and larger were gravid in mid-June. Small females, probably in their first breeding season, contained three or four enlarged ova; fully adult females usually contained eight or nine. Males seem



to reach sexual maturity at an earlier age than females. Young males no longer than 40 mm in snout-vent length had enlarged testes, yet they had not developed the color pattern of adult males. Snout-vent length of the largest male was 83 mm; of the largest female, 77 mm.

Sceloporus stejnegeri Smith

TCWC (4), Tropical Deciduous forest. 1 mi SW Tierra Colorada, 900 ft (1 ♂, 3 ♀). Other record: Tierra Colorada (Smith, 1942).

A member of the *formosus* group, with complete, or nearly complete, black nuchal collar, not light bordered; bluish green color above. None of our specimens, captured 2 July, was sexually active. The largest specimen, an adult female, measured 83 mm in snout-vent length.

Sceloporus melanorhinus calligaster Smith

TCWC (5), Tropical Deciduous forest. Acahuizotla, 2800 ft (3 ♀ ♀); 1 mi SW Colotlipa, 2700 ft (1 ♀); 4 mi W Ocotito, 2600 ft (1 ♂). Other records: Tierra Colorada (Gadow, 1905); Garrapatas, Mexcala (Smith, 1939b).

Our specimens were all found in trees. All of the adult females taken in June contained from five to eight enlarged ova; those nearly ready for deposition (6 June) measured 11×18 mm. Snout-vent length of females, 87–96 mm; tail, 116–127 mm; of one male, 80 mm and 113 mm, respectively. One specimen from 8 km N Taxco (5500 ft), northeast of the Chilpancingo area, seems to represent an altitudinal record; most specimens have been captured at elevations below 3500 feet.

Sceloporus horridus horridus Wiegmann

TCWC (82), Arid Tropical Scrub, Chaparral-oak, Pine-oak and Tropical Deciduous forests. Acahuizotla, 2800 ft (14 ♂ ♂, 19 ♀ ♀); Agua del Obispo, 3300 ft (1 ♂); Almolonga (= Amula) 5600 ft (6 ♂ ♂, 9 ♀ ♀); 16 km S Chilpancingo, 4300 ft (1 ♀), 4 mi W Chilpancingo 5800 ft (5 ♂ ♂, 6 ♀ ♀); 14 mi W Chilpancingo, 6500 ft (1 ♂); 1 mi SW Colotlipa, 2700 ft (8 ♂ ♂, 4 ♀ ♀); Mexcala, 1600 ft (1 ♂, 2 ♀ ♀); 5 mi S Puente de Mexcala, 1800 ft (2 ♂ ♂); 1 mi S Tierra Colorada, 900 ft (1 ♂, 1 ♀); 2 mi N Tixtla, 4400 ft (1 ♀). Other records: between Cajones and Acahuizotla; Chilpancingo; 16 km N Mexcala; Palo Blanco; Tierra Colorada (Smith, 1939b); Chilapa (Ahl, 1934).

This species seems to be the most common lizard in Guerrero at elevations between 1000 feet and 6000 feet, especially in rocky areas.

Breeding probably takes place from May to September. Most of the sexually mature females (70 mm or more in snout-vent length) taken in Guerrero contained large ova in June and early July. Davis and Smith (1953: 103) found the same condition existing in females from the state of Morelos in late July and August. The larger (85–100 mm snout-vent

Fig. 2. Correlation of snout-vent length and tail length in *Basiliscus vittatus*.

length), hence probably the older, females contained an average of 12 (9–15) large eggs, whereas smaller females (70–82 mm), probably in their first breeding season, contained an average of 9 (5–13). This difference is probably a function of body size of the female because we could detect no appreciable difference in size (8 × 15 mm) of eggs nearly ready for deposition. There is evidence that two or more broods are produced annually. Several adult females taken early in June and another lot taken the first week in July contained numerous ovarian eggs 3 mm to 4 mm in diameter and at the same time had large, flabby oviducts. This condition suggests that these females had already laid one clutch of eggs and that another was in process of developing.

Sexually mature males (testes 5–10 mm in diameter) ranged from 67 mm to 115 mm in snout–vent length. Two males 65 mm in snout–vent length had small (1 mm) testes and three females 60 to 65 mm in snout–vent length had infantile ovaries. These five animals were probably from late broods of the previous year. No specimens smaller than 60 mm were found in June and July. Davis and Smith (*op. cit.*), reported finding newly hatched young early in August in the adjacent state of Morelos.

Sceloporus grammicus grammicus Wiegmann

TCWC (18), Pine-oak and Cloud forests. 4–5 mi W Mazatlán, 7800–8500 ft (2 ♂ ♂, 1 juv.); 2 mi W Omiltemi, 7900 ft (3 ♂ ♂, 4 ♀ ♀); 2.5 mi S Almolonga, 5600 ft (3 ♂ ♂, 1 ♀, 4 juv.). Other records: Chilpancingo, Omiltemi (Smith and Taylor, 1950).

These lizards are mainly arboreal and live on trees in the mixed forest. None of the three adult females taken 9 June and 2 July was gravid, but adult males had large testes. Four juveniles captured in early July range in size from 35 mm to 43 mm (snout–vent length) and appear to be young-of-the-year. If so, the breeding season must be in April and May. Sexual maturity is reached when the lizard has attained a snout–vent length of about 45 mm. The largest male measured 71 mm (snout–vent length); the largest female, 62 mm.

Sceloporus mucronatus omiltemanus Günther

TCWC (38), Chaparral-oak, Pine-oak, and Cloud forests. 4 mi W Mazatlán, 7400–7800 ft (3 ♂ ♂, 5 ♀ ♀, 2 juv.); 5 mi W Mazatlán, 8000–8500 ft (1 ♂, 1 ♀, 4 juv.); Omiltemi, 7900 ft (5 ♂ ♂, 9 ♀ ♀, 2 juv.); Tecojote, 7000 ft (3 ♂ ♂, 1 juv.); 2.5 mi S Almolonga, 5800 ft (1 ♀, 1 juv.). Other record: Sierra de Burro ca. Omiltemi (Smith, 1939b).

West of Chilpancingo, this species is an inhabitant of the pine-oak community at high elevations, but east of there in the vicinity of Almolonga, it occurs on the oak-covered ridges. Individuals have a decided preference for logs and stumps, or snags with cavities or crevices in them, in openings in the forest where they can sun themselves.

Breeding must take place in March or April because by the first week in June young-of-the-year (34–36 mm in snout–vent length) were abundant. All sexually mature females we collected in June had quiescent

ovaries, but large, convoluted oviducts. Some of the males still had enlarged testes (8 mm in diameter), but in most of them the size was only 4 mm or 5 mm. These data suggest a single brood yearly.

Sceloporus siniferus siniferus Cope

TCWC (94), Tropical Deciduous and Pine-oak forests. Acahuizotla, 2800 ft (8 ♂♂, 16 ♀♀); 2 mi W Acahuizotla, 3500 ft (10 ♂♂, 8 ♀♀); Agua del Obispo, 3300 ft (8 ♂♂, 10 ♀♀); mountains W of Agua del Obispo, 4000 ft (4 ♂♂, 5 ♀♀); 10 mi SE Colotlipa, 4000 ft (1 ♂, 2 ♀♀); 1 mi SW Colotlipa, 2700 ft (9 ♂♂, 8 ♀♀); 5 mi W Mazatlán, 8000 ft (2 ♀♀); Tierra Colorada, 1000 ft (2 ♂♂); 5 mi SW Tierra Colorada, 1000 ft (1 ♂). Other records: 2–3 km S Acahuizotla; 2 mi S Garrapatas; 1 mi N Organos; between Rincón and Cajones; Xaltianguis (Smith, 1939b). Buena Vista, Rincón (Gadow, 1905); Omiltemi (Günther, 1890). Río Balsas (Smith, 1939b) is probably in error.

This species appears to be widespread throughout Guerrero south of the Río Balsas. Our specimens were found mainly on the trunks of trees.

Because all females taken in June and early July were gravid, with eggs ranging up to 11 × 6 mm in size, and no young-of-the-year were seen by us, we assume that courtship and breeding begin in May. There is evidence that at least some females produce two clutches of eggs in rapid succession. The number of large eggs contained per female ranged from 2 to 9, averaging 6. Sexual maturity seems to be attained in one year.

Snout–vent length of 53 females taken in June and July ranged from 44 to 60 mm, averaging 53 mm; of 50 males, from 46 to 60 mm, averaging 55 mm. These data indicate no sexual difference in size in this species.

Sceloporus ochoterenai Smith

TCWC (44), Arid Tropical Scrub, Chaparral-oak, and Tropical Deciduous forests. 2.5 mi S Almolonga, 5600 ft (9 ♂♂, 9 ♀♀); 4 mi W Chilpancingo, 5800 ft (9 ♂♂, 12 ♀♀); 1 mi SW Colotlipa, 2700 ft (2 ♂♂, 2 ♀♀); Mexcala, 1600 ft (1 ♀). Other records: Balsas, between Cajones and Acahuizotla, Chilpancingo, 16 km S Chilpancingo, 2 mi N Mazatlán, 16 km N Mexcala (Smith, 1939b); Tierra Colorada (Gadow, 1905).

Our specimens were all found on the ground in relatively dry situations. Seemingly the species is a good indicator of the xeric Balsas Basin Biotic Province. The record from Tierra Colorada is open to question until additional specimens from that locality are available.

All females taken by us in June were gravid; some with ova no more than 2 mm in diameter, others with eggs measuring as much as 10 × 6 mm and nearly ready for deposition. The average number of eggs per female was slightly less than six. Adult females ranged from 43 mm to 50 mm (average about 46) in snout–vent length; males from 46 mm to 56 mm (average about 50). Since there appears to be only one age-

class (adult) in our series of 62 specimens, it seems reasonable to assume that adult size and sexual maturity are attained in the first year. The only record we have for newly hatched young is for 12 August (see Davis and Smith, 1953).

Sceloporus gadoviae Boulenger

TCWC (10), Arid Tropical Scrub, and Chaparral-oak forest. Mexcala, 1600 ft (4♀ ♀); 5 mi S Puente de Mexcala, 1800 ft (4♂ ♂, 2♀ ♀). Other record: Near Río Balsas (Smith, 1939b).

Our specimens were found on the vertical faces of rocky out-croppings and cuts along the highway. Most of the adult females taken in June contained 3 or 4 large ova; those nearly ready for deposition measured 14 × 8 mm. Adult males measured 60–65 mm in snout–vent length; females, 52–57 mm.

Sceloporus pyrocephalus Cope

TCWC (2♂ ♂), Arid Tropical Scrub. 5 mi S Puente de Mexcala, 1800 ft (1); Mexcala, 1600 ft (1). Other record: Near Balsas (Smith, 1939b).

These lizards occur in open rocky areas, especially among large boulders and on limestone bluffs. They are exceedingly wary, the males more so than the females, and it is difficult for the collector to get within effective range of shot shells used in a .22 calibre pistol. When disturbed, they quickly seek refuge under the boulders or in cracks and crevices in the bluffs.

One of the females collected near Acapulco in mid-June (11 to 16 June) contained five large eggs (7 × 11 mm). All the others had flacid oviducts, but the ova were small, measuring from 2 mm to 4 mm in diameter. We judged from this condition that most of the females had oviposited by mid-June. Since Smith (1939b) reported the capture of females with 5 to 7 eggs on 5 and 21 July, it seems likely that this lizard lays two (or more) clutches of eggs during the summer.

Males and females are markedly different in size and color. Only the females have the reddish-brown head. Females range from 53 mm to 58 mm in snout–vent length; males, from 60 mm to 70 mm, and they are much more robust.

Sceloporus spinosus caeruleopunctatus Smith

TCWC (1♂), Chaparral-oak forest. 2 mi S Almolonga, 5600 ft.

This specimen, a juvenile 60 mm in snout–vent length, is referred to *caeruleopunctatus* on the basis of five supraoculars and 31 dorsal scales. It is like *S. s. spinosus* in the presence of only eight femoral pores on each side. This appears to be a new record for Guerrero and a marked extension of the known range of *caeruleopunctatus*.

Urosaurus bicarinatus bicarinatus Duméril

TCWC (3), Chaparral-oak forest and Arid Tropical Scrub. 5 mi S Puente de Mexcala, 1800 ft (1♀); 2.5 mi S Almolonga, 5800 ft (1♂, 1♀). Other records: 12 mi S Chilpancingo; Mexcala (Smith, 1935a);

Chilpancingo, Río Balsas, Tierra Colorada (Gadow, 1905); Agua del Obispo (Smith and Taylor, 1950).

This lizard seems to inhabit the open sparse vegetation in the Chilpancingo region. Our three specimens were taken from logs and trees. Both sexes are very dark on the ventral surfaces, more so than in typical *bicarinatus*. The belly patch of the male extends to the posterior third of the venter. None of them shows tendencies toward intergradation with *U. b. anonymorphus* from Colotlipa, an airline distance of only 13 miles.

Urosaurus bicarinatus anonymorphus Mittleman

TCWC (35), Tropical Deciduous and Pine-oak forests. Acahuizotla, 2800 ft (8♂♂, 7♀♀); Agua del Obispo, 3300 ft (3♂♂, 3♀♀); mountains W of Agua del Obispo, 4000 ft (2♂♂, 1♀); 1 mi SW Colotlipa, 2700 ft (3♂♂, 4♀♀); 1 mi SW Tierra Colorada, 900 ft (2♂♂, 1♀); 5 mi SW Tierra Colorada, 1000 ft (1♂). Other record: Tierra Colorada (Mittleman, 1942).

All of our specimens of *anonymorphus* are adults. There is a general tendency for specimens from the Tropical Deciduous forest to have dark venters and the belly patches fused medially. Males taken from the Pine-oak forest are paler ventrally and have two distinct belly patches separated medially by the lighter ventral coloration.

One specimen taken 6 miles east of Acapulco is typical of *anonymorphus*. This does not agree with the distributional pattern given by Mittleman (1942) who states that all *bicarinatus* east of Tierra Colorada belong to the subspecies *anonymorphus*. There seems to be a parallel situation in the distribution of *U. b. anonymorphus* and the snake *Conopsis vittatus viduus*. Both are surrounded on three sides by the nominal subspecies. There appears to be a narrow corridor through which these two reptiles range from Tehuantepec, Oaxaca, to the Chilpancingo region of Guerrero.

Family SCINCIDAE Gray

Mabuya brachypoda Taylor

TCWC (16), Tropical Deciduous and Chaparral-oak forests. Acahuizotla, 2800 ft (4♂♂, 2 yg.); 2.5 mi S Almolonga, 5600 ft (2♂♂, 1♀, 2 juv.); 4 mi W Chilpancingo, 6000 ft (1♂); 1 mi SW Colotlipa 2700 ft (1♂, 2♀♀, 1 juv.). Other record: Tierra Colorada (Gadow, 1905). We have followed the systematic arrangement of Mexican *Mabuya* set forth by Webb (1958).

This skink occupies an altitudinal range on the Pacific slopes of Guerrero from 500 feet near Acapulco to at least 6,000 feet in the mountains west of Chilpancingo. It occurs in leaf litter, under logs and boulders, and in clumps of bunch grass.

This is one of the few ovoviparous lizards. Four adult females taken from 21 June through 2 July were either gravid with young or, in one instance, had given birth to young. The gravid females contained 2, 3 and 4 nearly full-term fetuses measuring about 28 mm in snout-vent

length. On 15 June and 3 July, young, recently born skinks, measuring 32 mm in snout-vent length, were found near Acahuizotla, and a slightly larger one (35 mm) was found near Colotlipa on 30 June. These data suggest that most of the young are born in June and early July.

Little sexual dimorphism is evident in this species. Adult males range from 62 mm to 72 mm in snout-vent length; females, from 63 mm to 87 mm. Like skinks of the genus *Lygosoma*, individuals of *Mabuya* have a transparent window in the lower eyelid which readily distinguishes them from members of the genus *Eumeces*.

Lygosoma assata taylori Oliver

TCWC (13), Tropical Deciduous and Pine-oak forests. Acahuizotla, 2800 ft (1 ♂, 2 ♀); Agua del Obispo, 3300 ft (3 ♂, 3 ♀); mountains W of Agua del Obispo, 4000 ft (3 ♀); 1 mi SW Colotlipa, 2700 ft (1 ♀). Other records: Chilpancingo, Tierra Colorada (Smith and Taylor, 1950); near Mazatlán; between Rincón and Cajones (Oliver, 1937).

These small, pale brown lizards were found in leaf litter and under rotten logs in the mixed forest at elevations from 2700 feet to near 4500 feet. Most of our females, which were taken in the last two weeks of June, were gravid with 1 to 4 eggs. Those nearly ready for deposition measured about 5 × 8 mm. Seemingly, one could expect to find newly hatched young ones in late July or August. Three adult males ranged from 44 mm to 51 mm in snout-vent length; 9 females, from 45 to 53.

Eumeces ochoterena Taylor

TCWC (6), Tropical Deciduous, Pine-oak and Cloud forests. Acahuizotla, 2800 ft (1 juv.); Agua del Obispo 3300 ft (1 ♂); 3 mi W Chilpancingo, 5000 ft (1 ♀); 4 mi W Mazatlán, 7800 ft (1 ♀, 2 yg.). Other records: 7 mi E Chilpancingo; Chilapa (Smith and Taylor, 1950). Mazatlán; between Rincón and Cajones (Taylor, 1933).

Our specimens were found under rocks or rotting logs at elevations varying from 2800 feet to 7800 feet. Adult females taken in June appeared to have oviposited earlier in the season; one recently hatched juvenile 25 mm in snout-vent length was captured 18 June. The largest specimen, a female that has nearly lost the white dorsolateral stripes, measured 64 mm in snout-vent length.

Family TEIIDAE Gray

Ameiva undulata dextra Smith and Laufe

TCWC (15), Tropical Deciduous and Pine-oak forests. Acahuizotla, 2800 ft (4 ♂, 2 ♀); Agua del Obispo, 3300 ft (1 ♂); mountains W of Agua del Obispo, 4000 ft (1 ♂); Almolonga, 5800 ft (3 ♂, 1 juv.); 5 mi W Chilpancingo 6000 ft (1 ♂); 1 mi SW Colotlipa, 2700 ft (1 ♂); 1 mi SW Tierra Colorada, 900 ft (1 ♂). Other records: Los Cajones (Gadow, 1905); Chilpancingo (Smith and Taylor, 1950); near Rincón (Smith and Laufe, 1946).

This species occupies an altitudinal range in southern Guerrero from near sea level to at least 6000 feet in the vicinity of Chilpancingo. Most of our specimens were found in rocky terrain. These lizards apparently are not common wherever they occur, and they seem to be much more shy and retiring than the related *Cnemidophorus*.

Little information is available on their breeding habits. Large males taken in late June and early July had enlarged testes; females, however, had small ovarian follicles. A young lizard 42 mm in snout-vent length was taken 1 July.

Adult males varied from 76 to 97 mm in snout-vent length; our two females measured 60 mm and 80 mm, respectively.

Cnemidophorus guttatus immutabilis Cope

TCWC (90), Tropical Deciduous and Pine-oak forests. Acahuzotla, 2800 ft (32 ♂♂, 23 ♀♀); Agua del Obispo, 3300 ft (13 ♂♂, 4 ♀♀); mountains W of Agua del Obispo, 4000 ft (1 juv.); 1 mi SW Colotlipa, 2700 ft (4 ♂♂, 4 ♀♀); 1 mi SW Tierra Colorada, 900 ft (1 ♂, 2 ♀♀); 5 mi SW Tierra Colorada, 1000 ft (3 ♂♂, 3 ♀♀). Other record: Tierra Colorada (Gadow, 1905).

In our series of 116 specimens of this species from Guerrero, all of them from elevations above 1000 feet are distinctly striped; a few adult males from near Acapulco are spotted with obscure lines. Adults from Acahuzotla, Agua del Obispo, and Colotlipa, at elevations above 2600 feet, are strikingly marked by a broad cream-colored stripe that sets them apart from all other specimens of this species we have seen. Further collecting at middle altitudes on the Pacific slope of the Sierra Madre del Sur may reveal that this sample represents an unnamed geographic race.

Most of the adult females taken in June were gravid; a newly hatched juvenile (snout-vent length 35 mm) was captured in the mountains west of Agua del Obispo on 24 June.

Cnemidophorus gigas Davis and Smith

TCWC (23), Tropical Deciduous and Chaparral-oak forests and Arid Tropical Scrub. 3 mi W Chilpancingo, 5000 ft (1 ♂, 1 ♀); 4 mi W Chilpancingo, 5800 ft (6 ♂♂, 3 ♀♀); 5 mi SW Chilpancingo, 6000 ft (1 ♂); 1 mi SW Colotlipa 2700 ft (6 ♂♂, 2 ♀♀); Mexcala, 1600 ft (1 ♀); 5 km S Puente de Mexcala, 1800 ft (2 ♂♂).

This species is probably widely distributed in the Balsas Basin and its extensions through such low passes as the valley of Colotlipa onto the Pacific slope of the Sierra Madre del Sur. Wherever found it is associated with rocky terrain and xeric chaparral.

Davis and Smith (1952) point out that this species appears to breed earlier in the season than *C. sacki*. One female taken 25 June at Colotlipa contained six eggs (12 mm × 20 mm) nearly ready for deposition.

Cnemidophorus deppei deppei Wiegmann

TCWC (32), Tropical Deciduous forest. 1 mi SW Tierra Colorada,

1000 ft (6♂♂); 5 mi SW Tierra Colorada, 1000 ft (17♂♂, 5♀♀); 5 mi SE Tierra Colorada, 1000 ft (4♂♂). Other records: Organos, Xaltinanguis (Duellman and Wellman, 1960).

All except two of our adult male specimens have bluish gray throats. The dorsal count varies from 93 to 112 granules and falls well within the range of variation recorded by Duellman and Wellman (*op. cit.*) for the Guerreran population. Femoral counts varied from 37 to 40, slightly higher than the recorded average of 35.9 (32–42).

Cnemidophorus deppei infernalis Duellman and Wellman

TCWC (6), Arid Tropical Scrub. Mexcala, 1600 ft (1♂, 2♀♀); 5 mi S Puente de Mexcala, 1800 ft (3♀♀). Other records: 3 km S Mexcala, 14 km N Zumpango del Río (Duellman and Wellman, 1960).

All of our specimens, three of which are from the type locality, agree with the characters designated for this subspecies by Duellman and Wellman.

Cnemidophorus sacki sacki Wiegmann

TCWC (51), Arid Tropical Scrub, Tropical Deciduous and Chaparral-oak forests. 2.5 mi S Almolonga, 5600 ft (7♂♂, 4♀♀); 3 mi W Chilpancingo, 5000 ft (1♂); 4 mi W Chilpancingo, 5800 ft (8♂♂, 2♀♀); 1 mi SW Colotlipa, 2700 ft (7♂♂, 3♀♀); Mexcala, 1600 ft (10♂♂, 6♀♀); 5 mi S Puente de Mexcala, 1800 ft (3♀♀). Other records: Chilpancingo, Río Balsas, Rincón (Gadow, 1906).

Eight of the 36 males ranged from 100 to 108 mm in snout-vent length, the others ranged from 80 to 98 mm. Females ranged from 60 to 90 mm in snout-vent length ($M = 73.7$). In the last half of June, the younger females (60–72 mm) contained two to four eggs, 1 to 8 mm in diameter; older females (75–90 mm) contained four to six eggs from 7 to 10 mm in diameter. This species was the most common lizard encountered in localities from which it was taken.

Family ANGUIDAE Cope

Abronia deppei Wiegmann

TCWC (1♀), Pine-oak and Cloud forests. 1 mi SW Omiltemi, 7700 ft. Other record: Omiltemi (Smith and Taylor, 1950).

Our female, which was found on the trunk of a tree on 10 June, contained enlarged ovarian follicles. Snout-vent length, 63 mm; tail, 90 mm.

Barisia gadovi gadovi Boulenger

TCWC (15), Pine-oak and Cloud forests. 4–5 mi W Mazatlán, 7800–8000 ft (4♂♂, 1♀, 1 juv.); Omiltemi 7600 ft (1♀); 2.5 mi W Omiltemi, 8500 ft (5♂♂, 2♀♀); 2 mi SW Omiltemi, 7800 ft (1♀). Other records: Chilpancingo (Tihen, 1949); mountains W Chilpancingo (Smith and Taylor, 1950); vicinity of Chilpancingo (Hall, 1951).

Our specimens were all found on or near the ground in the coniferous forests at high elevations in June. None of the females had ova larger than one millimeter in diameter, but several of the larger males had en-

larged testes. Snout-vent length of adult males ranged from 90 to 101 mm; of females 85 to 93. A juvenile taken 24 June measured 35 mm.

Tihen's (1949) report of specimens from Chilpancingo most certainly does not refer to the immediate vicinity of that town which is in a valley surrounded by xeric conditions.

Gerrhonotus liocephalus liocephalus Wiegmann

TCWC (2 ♀ ♀), Pine-oak and Cloud forests. Acahuizotla, 2800 ft. Other record: Omiltemi (Gadow, 1905; Smith and Taylor, 1950).

Our two specimens came from the mixed pine-oak forest a short distance west of the village of Acahuizotla. The adult female is 153 mm in snout-vent length; the tail, 170 mm. The juvenile is 83 mm from snout to vent. The adult, taken 21 July, had small ovarian follicles.

Family HELODERMIDAE Gray

Heloderma horridum Wiegmann

TCWC (1 yg.), Tropical Deciduous forest. 1 mi SW Colotlipa, 2700 ft (collected 30 June 1953). Our specimen, 212 mm in total length (130 mm S-V length), is brilliantly colored yellow and black. The mid-dorsum has eight bright yellow spots in a row from rear of head to base of tail. The tail has five bright yellow crossbands, slightly narrower than the black interspaces. The testes are two millimeters in diameter.

Family KINOSTERNIDAE

Kinosternon integrum Le Conte

TCWC (15), Tropical Deciduous and Chaparral-oak forests. Acahuizotla, 2800 ft (5 ♂ ♂, 5 ♀ ♀, 1 yg.); 1 mi SW Colotlipa, 2700 ft (2 ♂ ♂, 1 ♀); 2.5 mi S Almolonga, 5600 ft (1 ♂). Most of our specimens were collected along a small stream near the village of Acahuizotla. The single specimen from near Almolonga was taken from a small pond after a heavy rain.

Measurements (in mm) of six adult males and six adult females are as follows, males and females, respectively: Length of plastron, 123-157 (M = 138.7), 103-145 (M = 127.0); width of fore lobe of plastron, 67-76 (M = 71.7), 54-77 (M = 66.7); width of hind lobe of plastron, 63-72 (M = 66.7), 51-74 (M = 64.2); width of bridge, 36-44 (M = 38.9), 28-45 (M = 38.7); width of carapace, 85-108 (M = 94.5), 80-101 (M = 89.3); length of carapace, 137-175 (M = 156.9), 110-158 (M = 137.2); depth of shell, 50-62 (M = 55.2), 41-60 (M = 53.5). Females average smaller in size, but the width of the plastral bridge is proportionally larger than that of the males. All adult males have well-developed claws on the front feet. Seemingly there are no other records of this species, nor of any other turtle, from the Chilpancingo region.

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